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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/580,688

05/26/2006

Ryosuke Tsuyuki

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EXAMINER

PETTITT, JOHN F

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

05/12/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/580,688	Applicant(s) TSUYUKI, RYOSUKE	
	Examiner /John Pettitt/	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05/26/2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/26/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. **Claims 1-9** are objected to because of the following informalities:

In regard to claim 1, the recitation, “are regenerate in stages” (line #) is assumed to read --are regenerated in stages--.

In regard to claim 4, the recitation, “a pressure in the case that is kept vacuum” (line 6) is assumed to read --a pressure in the case that is kept **at** vacuum--.

In regard to claim 5, the recitation, “the buildup determination” (line 5) lacks antecedent basis should read --a buildup determination--.

In regard to claim 7, the recitation, “the ___” (line #) lacks antecedent basis should read --a ___--.

In regard to claim 8, the recitation, “the temperature” (line 3) lacks antecedent basis should read --a temperature--.

In regard to claim 9, the recitation, “switched to the evaluation step” (line 2) should read --switched to the **discharge** step-- as this is a clear error.

Appropriate correction is required.

Drawings

2. The drawings were received on 05/26/2006. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “time when a temperature of the portion of the case in which the ice is condensed reaches the melting point of the ice” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Furthermore, Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-9** are rejected under 35 U.S.C. 102(b) as being anticipated by Bartlett et al. (US 5,375,424) hereafter Bartlett.

In regard to claim 1, Bartlett teaches a water regeneration method for discharging ice (column 5, lines 64) condensed in a portion (62 or 70 or space near 62 or 70) cooled by a cryogenic refrigerator (40, 44) installed in a case (20) to an outside of the case (exterior to 20), comprising: a temperature increasing step (heater 69 on or purge gas admitted - column 5, lines 5-7, 25-27) for melting the ice; a vaporizing step (rough pumping through valve 84) for vaporizing water; and a discharging step (pumping down below 1000 microns - step 114, column 6, lines 15-25) for discharging water vapor, wherein the ice, the water, and the water vapor are regenerated in stages (as the temperature increasing step, vaporizing step and discharging steps are sequential).

In regard to claim 2, Bartlett teaches that each of the vaporizing step and the discharging step includes buildup determination (pressure detection determines a buildup of gases built up in system).

In regard to claim 3, Bartlett teaches that the temperature increasing step (heater on or purge gas admitted) is a warm-up step for increasing a temperature of the

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portion (62 or 70 or space near 62 or 70) of the case (20) in which the ice is condensed (column 5, lines 64-65) to a melting point of the ice or higher to melt the ice (column 6, lines 5-11).

In regard to claim 4, Bartlett teaches that the temperature increasing step (heater 69 on or purge gas admitted - column 5, lines 5-7, 25-27) is performed by temperature increase by purge in which a purge gas (column 5, line 29) having a higher temperature than the melting point of the ice is made to flow in the case (20) to return a pressure in the case that is kept **at** vacuum to an atmospheric pressure (column 6, line 9) and improve thermal conductivity with the outside of the case (column 5, lines 5-8, 25-30) and by temperature increase by a heater (heater 69).

In regard to claim 5, Bartlett teaches that in the vaporizing step, water is vaporized by performing rough evacuation (column 5, lines 44-48, column 6, lines 5-10) to reduce a pressure of the portion (62 or 70 or space near 62 or 70) in which the water generated from melting of the ice by the temperature increasing step (heater on or purge gas admitted) is accumulated within a range in which the temperature and the pressure of the portion are prevented from reaching a freezing point of the water (column 5, line 65 - column 6, line 4), **a** buildup determination for determining pressure increase by discharged moisture or a gas when the evacuation is stopped is performed (pressure is detected), and the water vaporization (rough pumping) and the buildup determination (pressure detection) are repeated until the water vanishes away (until pump is emptied - column 6, lines 5-14).

In regard to claim 6, Bartlett teaches that the pressure during the rough evacuation is set to 100 Pa to 200 Pa (1000 microns - column 5, lines 48).

In regard to claim 7, Bartlett teaches that the discharging step (pump down below 1000 microns) is an evacuation step (column 6, lines 15-21) for discharging the water vapor by further reducing the pressure by the rough evacuation at a time when the water is vaporized (all liquid is vaporized) by the vaporizing step (rough pumping), performing a buildup determination to determine the pressure increase by a gas when the evacuation is stopped (pressure detection), and repeating the discharge of the water vapor (pumping at pressure below 1000 microns) and the buildup determination (pressure detection) until the pressure increase is smaller than a value (500 microns) used for the determination (column 6, lines 15-20).

In regard to claim 8, Bartlett teaches that the temperature increasing step () is switched to the vaporizing step at a time when a temperature of the portion (62 or 70 or space near 62 or 70) of the case (20) in which the ice is condensed reaches the melting point of the ice (interpreted as a time when the ice has changed to pooled liquid - column 4, line 54 and column 6, line 10).

In regard to claim 9, Bartlett teaches that the vaporizing step (heater on and purge gas admitted) is switched to the evacuation step (pumping below 1000 microns) based on the buildup determination (pressure detection) using the discharged moisture or gas when the evacuation is stopped (column 6, lines 15-20 when vaporization is complete).

In regard to claims 10-13, Bartlett teaches a water regeneration apparatus for discharging ice condensed in a portion (62 or 70 or space near 62 or 70) cooled by a cryogenic refrigerator (40, 44) installed in a case (20) to an outside of the case (20), comprising: temperature increasing means (heater 69 and purge gas line and valve) for increasing a temperature of the portion (62 or 70 or space near 62 or 70) in the case (20) in which the ice is condensed to a melting point of the ice or higher to melt the ice; vaporizing means (rough pump) for vaporizing water generated by melting of the ice by performing rough evacuation to reduce a pressure of the portion (62 or 70 or space near 62 or 70) in which the water is accumulated within a range in which the temperature and the pressure of the portion are prevented from reaching a freezing point of the water, performing buildup determination based on discharged moisture or gas when the evacuation is stopped, and repeating the water vaporization and the buildup determination until the water vanishes away; and evacuation means (also rough pump) for discharging water vapor by further reducing the pressure at a time when the water is vaporized; wherein the temperature increasing means is achieved by a purge gas and a heater (column 5, line 25-30).

5. Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Brezoczky et al. (US 6,122,921) hereafter Brezoczky.

In regard to claim 1, Brezoczky teaches a water regeneration method for discharging ice condensed in a portion (in 6, or on stages, column 5, line 40) cooled by a cryogenic refrigerator (21) installed in a case (8) to an outside of the case (exterior to

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8), comprising: a temperature increasing step (regeneration heat up) for melting the ice (column 2, line 51); a vaporizing step (flashing to gas, column 2, line 54) for vaporizing water; and a discharging step (removed from the pump, column 2, line 54) for discharging water vapor, wherein the ice, the water, and the water vapor are regenerated in stages (as the temperature increasing step, vaporizing step and discharging steps are sequential).

In regard to claim 8, Brezoczky teaches that the temperature increasing step () is switched to the vaporizing step (gasifying) at a time when a temperature of the portion (in 6 or on stages) of the case (8) in which the ice is condensed reaches the melting point of the ice (as these vaporization inherently follows melting).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to /John Pettitt/ whose telephone number is 571-272-0771. The examiner can normally be reached on M-F 8a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler or Frantz Jules can be reached on 571-272-4834 or 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John Pettitt
Examiner
AU 3744

JFP III
May 8, 2008

/Frantz F. Jules/
Supervisory Patent Examiner, Art Unit 3744

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